UNISA

INF3705 (493232) May/June 2015

ADVANCED SYSTEMS DEVELOPMENT

Duration 2 Hours 100 Marks

EXAMINERS
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Closed book examination.

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This examination question paper consists of 6 pages plus instructions for the completion of a mark-reading sheet

INSTRUCTIONS

1 Answer section A on the mark-reading sheet, and the rest of the questions in the answer book

2 All rough work must be done in the answer book

3 The mark for each question is given in brackets next to the question

4 Please answer the questions in the order in which they have been set If you wish to leave out a question temporarily and come back to it later, leave sufficient space for it in your answer book

SECTION A: MULTIPLE-CHOICE QUESTIONS [50 MARKS**]

1 What are the four framework activities found in the Extreme Programming (XP) process model?

    1 Analysis, design, coding, testing
    2 Planning, analysis, design, coding
    3 Planning, analysis, coding, testing
    4 Planning, design, coding, testing

2 Which of the following is not a key question to be answered by team members at each daily Scrum meeting?

    1 What did you do since the last meeting?
    2 What obstacles are you encountering?
    3 What is the cause of the problems you are encountering?
    4 What do you plan to accomplish be the next team meeting

3 Which of the following is appropriate for the incremental model of software development?

    1 When developments methods are flexible
    2 When the process of software development is well defined
    3 When a core product is required quickly
    4 All of the above

4 The agile model of software development is most appropriate for the following situation

    1 When developments methods are flexible
    2 When the process of software development is well defined
    3 When requirements are well known in advance
    4 All of the above

5 What is the purpose of load testing?

    1 To test the response rate of the system
    2 To test the number of transactions that the system can handle simultaneously
    3 To test during development
    4 All of the above.

6 The purpose of performance testing is to————

    1 To test the response rate of the system
    2 To test the number of transactions that the system can handle simultaneously
    3 To test during development
    4. All of the above

7 Usability testing involves the following

    1 Deployment testing
    2 Requirements validation
    3 Load testing
    4 All of the above

2

8 As a system developer, which of the following are elements to be considered in systems design?

    1 Architecture, data and interfaces
    2 Data interfaces and project scope
    3 Systems models
    4 All of the above

9 Which one of the following are concerns of software engineering

    1 Architecture, data and interfaces
    2 Data interfaces and project scope
    3 Systems models
    4 All of the above

10 An architectural style encompasses which of the following elements?

    1 Constraints
    2 Set of components
    3 Semantic models
    4 All of the above

11 To determine the architectural style or combination of styles that best fits the proposed system, requirements engineering is used to uncover _____

    1 Algorithmic complexity
    2 Characteristics and constraints
    3 Control and data
    4 Design patterns

12 Which of the following are elements of systems requirements?

    1 Architecture, data and interfaces
    2 Data, interfaces and project scope
    3 Systems models
    4 All of the above

13 Which of the following is preferable of software modules?

    1 Low cohesion and high coupling
    2 High cohesion and high coupling
    3 High cohesion and low coupling
    4 It depends on the situation

14 Cyber security dealing with secrecy or confidentiality threats is referred to as ————————

    1 Unauthorized modification of data
    2 Denial of access to data and services
    3 Unauthorized viewing of data
    4 All of the above

15 Integrity threats refer to one of the following

    1 Unauthorized modification of data
    2 Denial of access to data and services
    3 Unauthorized viewing of data
    4 All of the above

16 Denial of access or availability threats refer to

    1 Unauthorized modification of data
    2 Denial of access to data and services
    3 Unauthorized viewing of data
    4 All of the above

17 The following can be classified as true of the Model–View–Controller (MVC) architectural pattern

    1 It has three components
    2 Has clients and servers
    3 It is a sequential model of processing
    4 None of the above

18 Prototyping involves the development of

    1 Initial demonstration of concepts
    2 A final product
    3 A stable product
    4 Beta version of the product.

19. Which of the following is an attribute of a dependable software engineering process?

    1 Documentable.
    2 Standardized
    3. Auditable
    4 All of the above

20 Redundancy and diversity are fundamental strategies in the dependability of a system
   Which of the following is an example of diversity?

    1. A spare/extra capacity
    2 Object oriented design
    3 Avoiding a single point of failure
    4 All of the above

21 Which of the following exploits on reusable components in its design?

    1. A backup mechanism
    2. Object oriented design
    3 Avoiding a single point of failure
    4 All of the above

22 Socio -Technical systems is made up of different components including_____

    1 Equipment
    2 Operating system
    3 Society
    4 All of the above

23 Which of the following influence the reliability of a system?

    1 Hardware reliability
    2 Software reliability
    3 Operator reliability
    4 All of the above

4

24 Why is it sometimes necessary to bypass the normal change management system and make urgent change to a system?

    1 To satisfy management
    2 To satisfy customer
    3 To repair a serious system fault
    4 None of the above

25 Which of the following factor is not used to assess applications evolution?

    1 Documentation
    2 Data.
    3 Performance
    4 Skills

SECTION B: STRUCTURED QUESTIONS   [50 MARKS]

Answer this section in the answer book provided.

QUESTION 1   [10]

Explain the concept 'software prototyping' and why it is important in requirement engineering.

QUESTION 2   [10]

You have been employed as a system developer in Q systems Explain to your new team members the following process activities, specification, validation and evolution

QUESTION 3   [10]
Members of your software development team think that agile methods should be based on principles Explain the principles of agile methods to the team

QUESTION 4   [10]

What are the fundamental concepts of user and system requirements and why must these requirements be written in different ways?

QUESTION 5   [10]
As a system developer, your organization requires you to make a decision on system architecture Explain to your organization members what decisions have to be made about the system during the architectural design process?

UNIVERSITY OF SOUTH AFRICA UNISA UNIVERSITEIT VAN SUID-AFRIKA
EXAMINATION MARK READING SHEET EKSAMEN-MERKLEESBLAD

PART 1 (GENERAL/ALGEMEEN) DEEL 1

STUDY UNIT e.g PSY100-X
STUDIE-EENHEID bv PSY100-X

INITIALS AND SURNAME ❸
VOORLETTERS EN VAN

DATE OF EXAMINATION ❹
DATUM VAN EKSAMEN

PAPER NUMBER ❷
VRAESTELNOMMER

EXAMINATION CENTRE (E.G PRETORIA) ❺
EKSAMENSENTRUM (BV, PRETORIA)

STUDENT NUMBER	UNIQUE PAPER NO
STUDENTENOMMER ❻	UNIEKE VRAESTEL NR ❽

For use by examination invigilator

Vir gebruik deur eksamenopsiener

◆

IMPORTANT
1 USE ONLY AN HB PENCIL TO COMPLETE THIS SHEET
2. MARK LIKE THIS
3. CHECK THAT YOUR INITIALS AND SURNAME HAS BEEN FILLED IN CORRECTLY
4. ENTER YOUR STUDENT NUMBER FROM LEFT TO RIGHT
5. CHECK THAT YOUR STUDENT NUMBER HAS BEEN FILLED IN CORRECTLY
6. CHECK THAT THE UNIQUE NUMBER HAS BEEN FILLED IN CORRECTLY
7 CHECK THAT ONLY ONE ANSWER PER QUESTION HAS BEEN MARKED
8. DO NOT FOLD

BELANGRIK
1 GEBRUIK SLEGS 'N HB-POTLOOD OM HIERDIE BLAD TE VOLTOOI
2. MERK AS VOLG
3. KONTROLEER DAT U VOORLETTERS EN VAN REG INGEVUL IS
4. VUL U STUDENTENOMMER VAN LINKS NA REGS IN
5. KONTROLEER DAT U DIE KORREKTE STUDENTENOMMER VERSTREK HET
6. KONTROLEER DAT DIE UNIEKE NOMMER REG INGEVUL IS
7 MAAK SEKER DAT NET EEN ALTERNATIEF PER VRAAG GEMERK IS.
8. MOENIE VOU NIE.

PART 2 (ANSWERS/ANTWOORDE) DEEL 2

Specimen only

MARK READING SHEET INSTRUCTIONS

Your mark reading sheet is marked by computer and should therefore be filled in thoroughly and correctly.

USE ONLY AN HB PENCIL TO COMPLETE YOUR MARK READING SHEET

PLEASE DO NOT FOLD OR DAMAGE YOUR MARK READING SHEET

Consult the illustration of a mark reading sheet on the reverse of this page and follow the instructions step by step when working on your sheet

Instruction numbers **❶** to **❿** refer to spaces on your mark reading sheet which you should fill in as follows

❶ Write your paper code in these eight squares, for instance

P	S	Y	1	0	0	-	X

❷ The paper number pertains only to first-level courses consisting of two papers.

WRITE | 0 | 1 | for the first paper and | 0 | 2 | for the second. If only one paper, then leave blank.

❸ Fill in your initials and surname.

❹ Fill in the date of the examination.

❺ Fill in the name of the examination centre.

❻ WRITE the digits of your student number HORIZONTALLY (from left to right) Begin by filling in the first digit of your student number in the first square on the left; then fill in the other digits, each one in a separate square.

❼ In each vertical column mark the digit that corresponds to the digit in your student number as follows [-]

❽ WRITE your unique paper number HORIZONTALLY.
NB Your unique paper number appears at the top of your examination paper and consists only of digits (e g. 403326)

❾ In each vertical column mark the digit that corresponds to the digit number in your unique paper number as follows. [-].

❿ Question numbers 1 to 140 indicate corresponding question numbers in your examination paper. The five spaces with digits 1 to 5 next to each question number indicate an alternative answer to each question. The spaces of which the number correspond to the answer you have chosen for each question and should be marked as follows: [-].

◆ For official use by the invigilator. Do not fill in any information here.